1502.16[g]). Numerous other laws, regulations, and executive orders define other requirements for protecting cultural resources, but the primary requirements are those of Section 106 of the National Historic Preservation Act (NHPA). NHPA mandates that as Federal undertakings are planned and implemented, the responsible Federal agencies give due consideration to historic properties, which are defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places (National Register). Federal undertakings include projects, activities, or programs funded in whole or in part by a Federal agency, or requiring a Federal permit, license, or approval. Regulations for *Protection of Historic Properties* (36 CFR Part 800) implement the NHPA by defining a process for demonstrating such consideration through consultation with State Historic Preservation Officers (SHPOs), the Federal Advisory Council on Historic Preservation (ACHP), and other interested organizations and individuals.

Cultural resources are addressed in this Draft EIS in compliance with both NEPA and NHPA. The cultural resource component of the affected environment is described first, and then the potential impacts of the Proposed Action and alternatives are discussed.

3.15.1 Affected Environment

3.15.1.1 Region of Influence

The region of influence, or analysis area, for assessing impacts on cultural resources was considered to be the "area of potential effects," as defined by regulations for *Protection of Historic Properties.* These regulations define the area of potential effects as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties" (36 CFR Part 800.16(d).

The area of potential direct effects was considered to be the area of the Project parcels or rights-of-way where ground-disturbing activities could occur. These include the plant site, well field and agricultural development parcel, new access road, four other groundwater monitoring wells, two existing roads used to access those wells, the pipeline that would supply natural gas to the plant, and communications systems (microwave and possibly OPGW).

Potential indirect effects include visual and noise intrusions that could diminish the historic values of certain types of cultural resources. The area of potential indirect effects is defined as extending up to 3 miles from the Project facilities. This zone encompasses about 317.5 square miles.

The Big Sandy River Basin was defined as the region of influence for considering potential cumulative impacts. This Basin encompasses about 2,732 square miles of east central Mohave County.

3.15.1.2 Existing Conditions

Cultural History

Human societies have lived in Arizona at least since the end of the Pleistocene epoch some 12,000 years ago. The early occupants, labeled Paleo-Indians, experienced a regional climate that was cooler and wetter than today, and large Pleistocene mammals, such as mammoths, mastodons, and camels, lived in the area. Archaeological evidence of the Paleo-Indian occupation of west-central Arizona is meager, and limited primarily to isolated finds of distinctive spear points used by early Paleo-Indian hunters. The large Pleistocene megafauna became extinct due to overhunting or inability to adapt to the warming and drying climate. Human societies that occupied this subsequent Archaic era came to rely on many species of smaller game and a wide variety of native plants for food. These Archaic-era hunters and foragers occupied the region for thousands of years. Populations remained small throughout this long period and, to date, little evidence of Archaic era

occupation has been found in the Big Sandy Valley.

About 700 years ago, residents of the region began to grow some of their own food. They adopted a more settled life style, and began to make ceramic vessels to store, cook, and serve food. Increasing population densities led to more cultural variability and groups began to be differentiated on the basis of geographical location, settlement and subsistence patterns, cultural practices, and styles of artifacts. The Cerbat branch of the Patayan culture appear to have been the primary occupant of the Big Sandy Valley during this time. The Cerbat typically lived in circular brush wikieups, but also used rock shelters and caves as habitation sites. Small triangular, side-notched arrow points, shallow-basin grinding slabs, and sherds of pottery are archaeological indicators of sites dating from this era of occupation.

Most archaeologists conclude that the Cerbat are the ancestors of the modern Hualapai Tribe. When Europeans first arrived, the Hualapais occupied a large part of northwestern Arizona between the Grand Canyon and the Bill Williams River.

Spanish explorers arrived in what is now southern Arizona in the early 1500s, but had little direct impact on the Hualapai culture. A missionary, Father Francisco Garcés, made the first direct contact with the Hualapai in 1776. Subsequently, a few trading and trapping expeditions crossed the region, but the Hualapais tended to avoid them. Intense Euroamerican interaction began only in the 1850s after the United States acquired the territory and the U.S. military explored the area searching for routes for wagon roads and railroads. Gold and silver were discovered in the mountains of the region, and miners flocked to the area throughout the 1860s and 1870s.

Initial encounters between the Hualapais and Euroamericans were friendly, but conflicts with Euroamerican miners and immigrants soon developed. Animosity culminated in the Hualapai War between 1866 and 1869. This war consisted of a series of retaliatory attacks, ambushes, and raids conducted by the Hualapais and Euroamericans alike. U.S. Army troops based at Fort Mohave destroyed perhaps a fourth of the tribe between June 1867 and December 1868. The Hualapais surrendered after an epidemic of whooping cough or dysentery further reduced the remaining population.

In 1874 the U.S. Army moved the Hualapais to Camp La Paz on the Colorado River Indian Reservation. To escape the poor conditions on the reservation, the Hualapais fled back to their aboriginal territory a year later. They discovered that their traditional way of life was no longer possible because Euroamerican ranchers, farmers, and miners had claimed most of the Hualapai lands during the short time the Hualapai Tribe was confined to the Colorado River Indian Reservation. The Hualapais were forced to work for wages in order to survive. In 1883, the Federal government established the Hualapai Indian Reservation, encompassing only a small portion of their aboriginal territory.

Ranchers and farmers followed the miners, and soon began to establish themselves along the Big Sandy River. By 1874, the county tax assessor documented 26 heads of household, presumably for ranches and farms, along the Big Sandy River Valley. The cattle industry in the area was booming by the late 1880s. In 1883, the Atchison, Topeka and Santa Fe railroad was completed, providing greater access to suppliers and markets. This railroad, as well as the construction of numerous wagon roads linking towns, ranches, and farms, drew additional settlers to the Big Sandy Valley. Between 1890 and the 1920s, some 2,000 acres were cultivated, with principal crops being alfalfa, barley, and vegetables. During historic times, the valley was the most productive farmland in the county, but after a few destructive floods destroyed fields and eroded topsoil, production declined and never again achieved such high yields.

Many of the mines closed in the 1930s and, combined with droughts and the Great

Depression, contributed to the economic decline of the area. Cattle ranching gradually began to recover, but the Taylor Grazing Act of 1934, designed to limit grazing to more sustainable levels, prevented the livestock industry from restocking the range with the size of herds grazed in earlier times. In 1957, construction of US 93 was completed, and Interstate 40 was completed to Kingman by 1979. Farming began to decline in the 1980s after the mine near Bagdad began to buy up large parcels of land along the Big Sandy River for the water rights.

Inventory Methods

Records maintained by agencies and museums were reviewed for information about prior cultural resource surveys and previously recorded archaeological and historical sites within 3 miles of the facilities of the proposed Project. Information about 52 prior studies and 100 previously recorded archaeological and historical sites was identified and compiled.

Intensive field survey within areas of potential effects was undertaken to supplement the previous studies. The survey encompassed about 563 acres, including the proposed plant site, water well field, four other observation wells, two existing access roads used to access those wells, the alignment of a new access road, and an agricultural development area.. Prior surveys have been conducted along US 93 and the Mead-Phoenix 500kV Transmission Project. The results of those surveys were used to evaluate the proposed and alternative pipeline corridor segments and OPGW communication system alternative from a cultural resource perspective. Additional inventory survey will be conducted as needed in accordance with a Section 106 programmatic agreement being developed for the Project.

Because portions of the Hualapai Indian Reservation are in the vicinity of the Project, the Hualapai Tribe was invited to be a cooperating agency in preparing this Draft EIS. Arrangements also were made for the Hualapai Tribe Department of Cultural Resources to conduct an ethnographic study to identify any traditional cultural resources that could be affected by the Project, and also participate in the field survey for archaeological and historical resources. Western also contacted the Yavapai-Prescott Tribe, Yavapai-Apache Nation, Fort Mojave Indian Tribe, Colorado River Indian Tribes, Navajo Nation, and Hopi Tribe. These tribes indicated they either had no traditional cultural interests in the Project area or that their traditional cultural interests were limited and they deferred to the Hualapai Tribe to address impacts on traditional cultural resources.

Cultural Resource Inventory

The cultural resources within the Project area are briefly described in this section. Further details and information about data sources are available in technical reports prepared for agency review and Section 106 consultations (Bassett and others 2001; Hualapai Tribe Department of Cultural Resources 2001)

Traditional Cultural Resources

An ethnographic study conducted by the Hualapai Tribe Cultural Resources Department documented that tribal members maintain strong ties to the Big Sandy Valley, particularly to the area where the confluence of Knight Creek and Trout Creek form the Big Sandy River. Around 1910 the Federal government designated land in this area, which is about 45 miles south of the main Hualapai Reservation, as an element of the larger reservation. Almost all of this land was allotted to tribal members who eventually sold the land to non-Indians. Only three parcels totaling about 700 acres still retain reservation status. Two of these parcels are allotted to tribal members and the other remains under tribal control.

About 20 Hualapai families lived in this area during the early twentieth century, and some of today's tribal elders remember living in the area during their youth. The last Hualapai families moved away around the 1960s. Although no tribal members reside on these parcels today, the

parcels are frequently visited and are recognized as assets.

Although the Hualapai Tribe has lost rights and access to most of the Big Sandy Valley, Tribal members think of the valley as an integral part of their aboriginal territory and consider it a traditional cultural landscape. Water sources, including the Big Sandy River and numerous springs scattered throughout the valley and adjacent mountains, are recognized as particularly important elements of that landscape. Early ethnographic studies documented that the Hualapais occupied four villages in the Big Sandy River Valley during the 1880s (Kroeber 1935). The largest community, *Hapuk*, composed of some 25 to 30 extended families, was scattered along a 15-mile stretch of the Big Sandy River between Wikieup and Signal, where surface flows usually are perennial. Another village of about 5 to 10 households was near the confluence of Knight Creek and Trout Creek and the nearby Cane Wash. Smaller villages of five or fewer households were in the northern end of the valley near Wheeler Wash and Bottleneck Wash, which are tributaries to Knight Creek. Although physical evidence of these villages has not been specifically identified, the ethnohistoric accounts reflect strong traditional Hualapai cultural ties to the Big Sandy Valley.

The Hualapai Tribe also considers the Big Sandy River Valley to be part of a spiritual landscape that includes a segment of the Salt Song Trail, a spiritual path that runs through their aboriginal territory. The Salt Song spiritual journey begins south of the Project area, travels north along of the Big Sandy River, and eventually crosses the Colorado River. The Big Sandy River Valley probably served as a secular travel corridor as well.

Hualapais regard archaeological sites as sacred remnants of their ancestral culture. Their traditional ethic is to avoid archaeological sites and respect their ancestors by leaving archaeological sites undisturbed.

Archaeological and Historical Sites

Seven archaeological and historical sites have been recorded in the vicinity of the proposed power plant, wells, and access roads (Table 3.15-1). Fifty-one isolated finds of aboriginal and historic Euroamerican artifacts also were identified within the surveyed areas, but all of these are evaluated as lacking historic values that warrant preservation or protection.

Three archaeological sites are within or partially within the plant site. Site AZ M:6:46 (ASM) is an undated scatter of fewer than 200 aboriginal flaked stone artifacts. Site AZ M:6:47 (ASM) is a scatter of aboriginal and historic Euroamerican artifacts and features around a spring. The site represents an aboriginal camp and historic era development of the spring for watering livestock. Site AZ M:6:48 (ASM) is a circular rock alignment that might be a wikieup (brush shelter) foundation but lacks artifacts to support that inference. All three of these sites are evaluated as eligible or potentially eligible for the National Register of Historic Places because of their potential to yield important information about the cultural history of the Big Sandy Valley (Criterion D).

Another site, AZ M:6:49 (ASM), is a historic Euroamerican trash dump adjacent to the proposed new access road. Site AZ M:6:50 (ASM) is another small trash dump adjacent to an observation well. Both of these sites are estimated to have no more than about 100 artifacts and are evaluated as lacking historic values that warrant protection or preservation, and therefore are not National Register-eligible.

Site AZ M:6:51 (ASM) is a scatter of about 100 aboriginal artifacts and a cleared area that may be the remnants of a structure or activity area. This site is located west of US 93 adjacent to a two-track that is used to access Observation Well 8 and the observation well east of Banegas Well. This site is evaluated as being National Register-eligible for its potential to yield important information about the aboriginal

TABLE 3.15-1
SUMMARY OF ARCHAEOLOGICAL SITES IN THE VICINITY OF THE PLANT SITE, WELLS, AND ACCESS ROADS

	Site Number/Name	Site Type	National Register Eligibility (Criterion)	Potential Project Impacts
1	AZ M:6:3 (ASM) Hillside to Kingman highway	historical road completed in 1924	recommended eligible (D)	no historical integrity within new access road right-of-way; occasional use of two-track segment for monitor well access will not affect historic values
2	AZ M:6:46 (ASM)	scatter of undated flaked stone artifacts (<200)	recommended potentially eligible (D)	none
3	AZ M:6:47 (ASM)	scatter of a few hundred Cerbat Patayan/Hualapai aboriginal and Euroamerican artifacts and features (spring box, 2 concrete troughs, metal tank, 2 rock alignments, check dams, 2 artifact clusters, 3 rock cairns)	recommended eligible (D)	northern portion of scatter will be disturbed by construction of access road on the power plant site
4	AZ M:6:48 (ASM)	circular rock alignment without artifacts	recommended potentially eligible (D)	none
5	AZ M:6:49 (ASM)	1930s trash scatter (~100 artifacts)	recommended not eligible	may be disturbed by new access road
6	AZ M:6:50 (ASM)	post-1920s trash scatter (<100 artifacts)	recommended not eligible	none
7	AZ M:6:51 (ASM)	Cerbat Patayan (possibly Prescott culture) artifact scatter (~100) with cleared area	recommended eligible (D)	none

occupation of the Big Sandy Valley (Criterion D).

The road that passes by site AZ M:6:51 (ASM) is a segment of the old Hillside to Kingman highway, which was completed in 1924, and replaced by US 93 in the 1950s. This segment of the road continues to be used as a ranch road. The new access road east of US 93 also crosses the alignment of the old highway but the road corridor in this area has been highly altered by upgrading and maintenance of Cholla Canyon Ranch Road. The old Hillside to Kingman highway has been designated as site AZ M:6:3 (ASM), and those portions of the road that retain historic integrity have been evaluated as being eligible for the National Register because of the information they might provide about early highway construction (Criterion D).

The proposed natural gas pipeline would be buried within a corridor that in part follows Hackberry Road, the Mead-Liberty and Mead-Phoenix transmission lines, and US 93 . ADOT has completed cultural resource surveys along US 93 in conjunction with planning upgrades of the highway, and other surveys were conducted prior to the construction of the Mead-Phoenix 500-kV Transmission Line Project. These studies provide information for assessing

potential impacts of the proposed pipeline. Available survey information indicates 29 historical and archaeological sites and historical roads have been recorded within the proposed pipeline corridor. Some of the historical roads are crossed more than once. Thirteen of the 29 recorded resources appear to have no significant historic values that warrant preservation (Table 3.15-2). Part of the Carrow-Stephens Ranches ACEC also is within the corridor but no archaeological or historical sites have been recorded in that portion of the ACEC, and the corridor is wide enough to accommodate a specific alignment that could completely avoid the ACEC (refer to Section 3.10).

The significant or potentially significant resources include eight historical ranches, three historical roads, a historical beehive site, and four aboriginal sites.

The Alternative R gas pipeline corridor has been more completely inventoried than the proposed corridor and 36 historical and archaeological sites and historical roads have been recorded in this corridor. Again, some of the roads are crossed more than once. Fifteen of the 36 recorded resources appear to have no significant values that warrant preservation (Table 3.15.3). The significant or potentially significant resources include ten historical ranches, five historical roads, a historical beehive site, and five aboriginal sites. The Carrow-Stephens Ranches ACEC is the most sensitive of these resources (refer to Section 3.10).

The Alternative T gas pipeline corridor has been less completely inventoried than the proposed corridor or the Alternative R gas pipeline corridor. Twelve historical and archaeological sites and historical roads have been recorded in this corridor, including one road that is crossed twice. Four of the 12 recorded resources appear to have no significant values that warrant preservation (Table 3.15.4). The significant or potentially significant resources include three historical ranches, three historical roads, and two aboriginal sites. The Carrow-Stephens Ranches ACEC also is within the corridor but no archaeological or historical sites have been recorded in that portion of the ACEC, and the corridor is wide enough to accommodate a specific alignment that could completely avoid the ACEC (refer to Section 3.10).

The other corridor segment that could be used to cross over from the transmission corridor to the road corridor is segment C2. This corridor segment is the right-of-way for Old US 93, and at this location follows the original Hillside to Kingman Highway, which was built in 1924. This road is designated as site AZ M:6:3 (ASM), and has been evaluated elsewhere as historically significant, but this segment has not be evaluated. This segment of the road is a crowned-and-ditched road that is well maintained and may have lost its historical integrity.

In summary, 16 significant or potentially significant archaeological and historical sites and roads have been recorded within the proposed pipeline corridor, 20 within the Alternative R gas pipeline corridor, and 8 within the Alternative T gas pipeline corridor. These numbers are based on only a sample of each corridor, and the extent of survey varies from corridor to corridor in about direct proportion to the number of recorded cultural resources. Other resources are likely to be identified once a right-of-way is defined and the specific areas of potential effect are intensively surveyed in accordance with the Section 106 programmatic agreement developed for the Project.

The primary substation communications system involves adding one microwave dish to an existing facility on Hayden Peak and a communication tower in the new substation. This system is not expected to affect any archaeological or historical sites. After the system is more specifically designed potential impacts on cultural resources, including traditional cultural places, will be further considered in consultation with the Hualapai Tribe in accordance with the Section 106 programmatic agreement developed for the Project.

TABLE 3.15-2
ARCHAEOLOGICAL AND HISTORICAL SITES ALONG THE PROPOSED PIPELINE

	Site Number/Name	Description	National Register Eligibility (Criterion)
Corridor Segment R1			
1	AZ G:14:8 (ASM) Hackberry Road	historical road	recommended not eligible
Corridor Segment C1			
2	AZ G:14:5 (ASM) Kingman to Round Valley road	historical road, ca. 1900-1950	recommended not eligible
3	AZ M:6:3 (ASM) Hillside to Kingman highway	historical road, ca. 1880s-1960s	recommended eligible (D)
Corridor Segment T3			
	none recorded		
Corridor Segment C3			
4	AZ M:2:2 (ASM)	Cerbat/Hualapai bedrock grinding slicks	recommended eligible (D)
5	AZ M:2:3 (BLM)	aboriginal flaked stone and ceramic sherds, badly eroded	recommended not eligible
6	AZ M:2:36 (ASM) Signal to Kingman and Hackberry road-west	historical road, ca. 1912-1950s	recommended eligible (D)
Corridor Segment T4			
7	AZ G:14:7 (ASM)	telephone line, ca. 1880-1950s	recommended not eligible
8	AZ M:2:8 (ASM) Cane Springs Site, *Taka Minva*	base camp of Lower Big Sandy band of the Hualapai	recommended eligible (A and D)
9	AZ M:2:7 (ASM)	ranch, ca. 1929-1990s	recommended potentially eligible (D)
10	AZ M:2:9 (ASM)	ranch, ca. 1900-1969	recommended potentially eligible (D)
11	AZ M:2:22 (ASM)	road, ca. 1930s-1950s	recommended not eligible
12	AZ M:2:26 (ASM)	road, ca. 1918-present	recommended not eligible
13	AZ M:2:36 (ASM) Signal to Kingman and Hackberry road-west	historical road, ca. 1912-1950s	recommended eligible (D)
Corridor Segment R5			
14	AZ M:6:1 (BLM)	Hualapai camp, location uncertain	unevaluated
15	AZ M:6:3 (ASM) Hillside to Kingman highway	historical road, ca. 1880s-1960s	recommended eligible (D)
16	AZ M:6:4 (ASM) Bland homestead	historical homestead, 1915-1918	recommended potentially eligible (D)
17	AZ M:6:6 (ASM) US 93 Big Sandy River Bridge	historical bridge, constructed 1948-1949	not eligible and demolished
18	AZ M:6:7 (ASM)	historical ranch, ca. 1880s-1960s	recommended potentially eligible (D)

TABLE 3.15-2 ARCHAEOLOGICAL AND HISTORICAL SITES ALONG THE PROPOSED PIPELINE			
	Site Number/Name	Description	National Register Eligibility (Criterion)
19	AZ M:6:8 (ASM)	5 to 7 petroglyphs, cultural tradition undetermined	undetermined
20	AZ M:6:26 (ASM)	apiary, ca. 1930s-1950s	recommended potentially eligible (D)
21	AZ M:6:27 (ASM)	trash scatter, ca. 1932-present	recommended not eligible
22	AZ M:6:28 (ASM)	trash dump, ca. 1900-1950	recommended not eligible
23	AZ M:6:29 (ASM) Signal to Kingman and Hackberry road	historical road, ca. 1870?-1950s?	recommended eligible (D)
24	AZ M:6:30 (ASM)	ranch, ca. 1900-present	recommended potentially eligible (D)
25	AZ M:6:31 (ASM)	ranch, ca. 1900-1950s?	recommended potentially eligible (D)
26	AZ M:6:32 (ASM)	trash scatter, early to mid-1900s to present	recommended not eligible
27	AZ M:6:33 (ASM) Morrow Ranch	historical ranch, ca. 1917-present	recommended not eligible
28	AZ M:6:34 (ASM)	historical or modern ranch	not determined
29	AZ M:6:40 (ASM) Chicken Springs Road	historical road, early 1900s – present	recommended not eligible
30	AZ M:6:43 (ASM)	ranch, ca. 1920s?	unevaluated
31	AZ M:6:49 (ASM)	1930s trash scatter (~100 artifacts)	not eligible

TABLE 3.15-3 ARCHAEOLOGICAL AND HISTORICAL SITES ALONG THE ALTERNATIVE R GAS PIPELINE CORRIDOR			
	Site Number/Name	Description	National Register Eligibility (Criterion)
Corridor Segment R1			
1	AZ G:14:8 (ASM) Hackberry Road	historical road	recommended not eligible
Corridor Segment R2			
	none recorded		
Corridor Segment R3			
2	AZ G:14:5 (ASM) Kingman to Round Valley road	historical road, ca. 1900-1950	recommended not eligible
3	AZ G:14:6 (ASM) Cofer Road	historical road, ca. 1920s-present	recommended eligible (D)
4	AZ M:2:36 (ASM) Signal to Kingman and Hackberry road-west	historical road, ca. 1912-1950s	recommended eligible (D)

TABLE 3.15-3
ARCHAEOLOGICAL AND HISTORICAL SITES ALONG THE
ALTERNATIVE R GAS PIPELINE CORRIDOR

	Site Number/Name	Description	National Register Eligibility (Criterion)
5	AZ M:6:3 (ASM) Hillside to Kingman highway	historical road, ca. 1880s-1960s	recommended eligible (D)
Corridor Segment C3			
6	AZ M:2:2 (ASM)	Cerbat/Hualapai bedrock grinding slicks	recommended eligible (D)
7	AZ M:2:3 (BLM)	aboriginal flaked stone and ceramic sherds, badly eroded	recommended not eligible
8	AZ M:2:36 (ASM) Signal to Kingman and Hackberry road-west	historical road, ca. 1912-1950s	recommended eligible (D)
Corridor Segment R4			
9	AZ M:2:6 (ASM) Carrow-Stephens Ranch	historical ranch complex, ca. 1882-1940	recommended eligible (A and D), Area of Critical Environmental Concern
10	AZ M:2:9 (ASM)	ranch, ca. 1900-1969	recommended potentially eligible (D)
11	AZ M:2:10 (ASM)	ranch, ca. 1920-1950	recommended potentially eligible (D)
12	AZ M:2:12 (ASM)	ranch, ca. 1900-1969	recommended potentially eligible (D)
13	AZ M:2:12 (SWD)	Cerbat/Hualapai camp, location uncertain	unevaluated
14	AZ M:2:13 (ASM)	historical two-track	recommended not eligible
15	AZ M:2:14 (ASM)	Patayan/Cerbat/Hualapai artifact scatter	recommended potentially eligible (D)
16	AZ M:2:22 (ASM)	road, ca. 1930s-1950s	recommended not eligible
17	AZ M:2:26 (ASM)	road, ca. 1918-present	recommended not eligible
18	AZ M:2:35 (ASM)	trash scatter, ca. 1930s-1950s	recommended not eligible
19	AZ M:2:36 (ASM) Signal to Kingman and Hackberry road-west	historical road, ca. 1912-1950s	recommended eligible (D)
20	AZ M:6:3 (ASM) Hillside to Kingman highway	historical road, ca. 1880s-1960s	recommended eligible (D)
21	AZ M:6:29 (ASM) Signal to Kingman and Hackberry road	historical road, ca. 1870?-1950s?	recommended eligible (D)
Corridor Segment R5			
22	AZ G:14:7 (ASM)	telephone line, ca. 1880-1950s	recommended not eligible
23	AZ M:6:1 (BLM)	Hualapai camp, location uncertain	unevaluated
24	AZ M:6:3 (ASM) Hillside to Kingman highway	historical road, ca. 1880s-1960s	recommended eligible (D)

TABLE 3.15-3
ARCHAEOLOGICAL AND HISTORICAL SITES ALONG THE
ALTERNATIVE R GAS PIPELINE CORRIDOR

	Site Number/Name	Description	National Register Eligibility (Criterion)
25	AZ M:6:4 (ASM) Bland homestead	historical homestead, 1915-1918	recommended potentially eligible (D)
26	AZ M:6:6 (ASM) US 93 Big Sandy River Bridge	historical bridge, constructed 1948-1949	not eligible and demolished
27	AZ M:6:7 (ASM)	historical ranch, ca. 1880s-1960s	recommended potentially eligible (D)
28	AZ M:6:8 (ASM)	5 to 7 petroglyphs, cultural tradition undetermined	undetermined
29	AZ M:6:26 (ASM)	apiary, ca. 1930s-1950s	recommended potentially eligible (D)
30	AZ M:6:27 (ASM)	trash scatter, ca. 1932-present	recommended not eligible
31	AZ M:6:28 (ASM)	trash dump, ca. 1900-1950	recommended not eligible
32	AZ M:6:29 (ASM) Signal to Kingman and Hackberry road	historical road, ca. 1870?-1950s?	recommended eligible (D)
33	AZ M:6:30 (ASM)	ranch, ca. 1900-present	recommended potentially eligible (D)
34	AZ M:6:31 (ASM)	ranch, ca. 1900-1950s?	recommended potentially eligible (D)
35	AZ M:6:32 (ASM)	trash scatter, early to mid-1900s to present	recommended not eligible
36	AZ M:6:33 (ASM) Morrow Ranch	historical ranch, ca. 1917-present	recommended not eligible
37	AZ M:6:34 (ASM)	historical or modern ranch	not determined
38	AZ M:6:40 (ASM) Chicken Springs Road	historical road, early 1900s – present	recommended not eligible
39	AZ M:6:43 (ASM)	ranch, ca. 1920s?	unevaluated
40	AZ M:6:49 (ASM)	1930s trash scatter (~100 artifacts)	not eligible

TABLE 3.15-4
ARCHAEOLOGICAL AND HISTORICAL SITES ALONG THE
ALTERNATIVE T GAS PIPELINE CORRIDOR

	Site Number/Name	Description	National Register Eligibility (Criterion)
Corridor Segment T1			
1	AZ M:6:3 (ASM) Hillside to Kingman highway	historical road, ca. 1880s-1960s	recommended eligible (D)
Corridor Segment T2			
2	AZ G:14:5 (ASM) Kingman to Round Valley road	historical road, ca. 1900-1950	recommended not eligible
Corridor Segment T3			
	none recorded		
Corridor Segment T4			
3	AZ G:14:7 (ASM)	telephone line, ca. 1880-1950s	recommended not eligible
4	AZ M:2:8 (ASM) Cane Springs Site, *Taka Minva*	base camp of Lower Big Sandy band of the Hualapai	recommended eligible (A and D)
5	AZ M:2:7 (ASM)	ranch, ca. 1929-1990s	recommended potentially eligible (D)
6	AZ M:2:9 (ASM)	ranch, ca. 1900-1969	recommended potentially eligible (D)
7	AZ M:2:22 (ASM)	road, ca. 1930s-1950s	recommended not eligible
8	AZ M:2:26 (ASM)	road, ca. 1918-present	recommended not eligible
9	AZ M:2:36 (ASM) Signal to Kingman and Hackberry road-west	historical road, ca. 1912-1950s	recommended eligible (D)
Corridor Segment T5			
10	AZ M:6:22 (ASM) NA18150	camp, no ceramic sherds, cultural tradition undetermined	recommended eligible (D)
11	AZ M:6:3 (ASM) Hillside to Kingman highway	historical road, ca. 1880s-1960s	recommended eligible (D)
12	AZ M:6:29 (ASM) Signal to Kingman and Hackberry road	historical road, ca. 1870?-1950s?	recommended eligible (D)
13	AZ M:6:31 (ASM)	ranch, ca. 1900-1950s?	recommended potentially eligible (D)

Two options are being considered for the dual/redundant communication system. One option would involve installation of an OPGW as a replacement of one of the static wires on the existing Mead-Liberty 345-kV transmission line, between the plant site and the Peacock Substation, about 40 miles to the north. In addition, new microwave dishes would need to be installed at three existing microwave facilities in the Phoenix metropolitan area and Bradshaw Mountains.

No inventory surveys have yet been conducted for this option, but the right-of-way for the Mead-Phoenix 500-kV Transmission Project is immediately adjacent to the Mead-Liberty line, which has been surveyed for cultural resources. As described above in the discussion of the Alternative T gas pipeline corridor, five potentially significant archaeological and historical sites and three historical roads have been recorded along this route between the plant site and the Interstate 40 corridor. Two additional sites have been recorded between Interstate 40 and the Peacock Substation. These include site AZ G:14:1 (MNA), a Cerbat/Hualapai scatter of flaked stone, and site AZ G:14:2 (MNA), a 1920s-1950s historic trash scatter and camp. When recorded, both sites were evaluated as having significant historic values when recorded. If this option were selected for construction, cultural resource inventories and assessments would be undertaken in accordance with the Section 106 programmatic agreement.

The second option for the dual/redundant substation communication system involves use of an existing Salt River Project microwave system. This option would require installing microwave dishes at the new substation and an existing Salt River Project microwave tower, and a new tower may be needed to complete a microwave path. If warranted, cultural resource inventories and assessments would be undertaken in accordance with the Section 106 programmatic agreement.

3.15.2 Environmental Consequences

3.15.2.1 Identification of Issues

Agency and public scoping identified the following three cultural resource issues that warranted consideration:

- potential impacts on the Carrow-Stephens Ranches ACEC
- potential impacts on traditional Native American Indian cultural resources
- compliance with Section 106 of the National Historic Preservation Act (identification, evaluation, and assessment of effects on sites, districts, structures, and objects eligible for the National Register)

3.15.2.2 Significance Criteria

Regulations implementing NEPA stipulate that evaluations of the significance of impacts consider both context and intensity or severity of impacts. One specific factor to be considered is "the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources" (43 CFR 1508.27[b][8]). The following two criteria were defined for identifying significant impacts:

- impacts inconsistent with BLM management prescriptions for the Carrow-Stephens Ranches ACEC (refer to Section 3.10)
- adverse impacts on traditional cultural resources or other National Register-eligible properties that cannot be satisfactorily mitigated as determined through consultation with the SHPO and other interested parties

3.15.2.3 Impact Assessment Methods

The criteria for assessing impacts were those stipulated by the regulations for *Protection of Historic Properties*, which state than an undertaking may have an adverse effect when it:

> "may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association (36 CFR Part 800.5(a)(1)).
>
> Examples of adverse effects include:
>
> (i) Physical destruction, damage, or alteration of all or part of the property;
>
> (ii) Alteration of a property. . . that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;
>
> (iii) Removal of the property from its historic location;
>
> (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
>
> (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
>
> (vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
>
> (vii) Transfer, lease or sale of the property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance (36 CFR Part 800.5(a)(2))."

The proposed Project may have direct and indirect effects on historical resources. These impacts can be limited to the construction period and therefore be short-term, or they may stem from operation of the system and be long-term or permanent.

The following two types of direct effects were evaluated:

- right-of-way and property acquisition
- physical disturbance, noise, and vibration due to construction activities

The following three types of indirect impacts were considered:

- modifications of visual settings
- noise and vibration associated with operations
- land use changes stimulated by the Project

3.15.2.4 Actions to Reduce or Prevent Impacts Incorporated into the Proposed Action

- The Proposed Action includes the following actions to reduce or prevent potential adverse environmental impacts on significant cultural resources:
- The detailed evaluation of any effects to cultural resources would be conducted in accordance with the terms of the programmatic agreement developed for the Project in compliance with Section 106 of the National Historic Preservation Act. This agreement defines a consultation process for avoiding or mitigating any identified adverse effects on significant cultural resources.

- Under the agreement, any unknown cultural resources or human remains discovered during the course of construction also would be protected, evaluated, and treated in accordance with the programmatic agreement. A plan to recover archaeological data from site AZ M:6:47 (ASM) is being developed and would be implemented in accordance with the Section 106 programmatic agreement. The plan would be implemented in close coordination with all participants, including the Hualapai Tribe

3.15.2.5 Impact Assessment

Proposed Action

Potential impacts on the Carrow-Stephens Ranches ACEC are addressed in Section 3.10.

The entire Project is within an area that the Hualapai Tribe considers to be an important traditional cultural landscape. Although the specific locations of ethnohistoric Hualapai villages have not been identified, the Tribe concludes that the intrusion of the proposed Project into the Big Sandy Valley would adversely affect the traditional cultural landscape that the valley represents for the Tribe. The Tribe also considers archaeological sites that reflect the occupation of the area by the Hualapai and their ancestors to be traditional cultural places. [The Tribe has concerns about potential impacts on other resources such as water supplies and air quality (refer to Section 5.3).] Tribal members would like all archaeological sites that reflect their heritage to be preserved and protected in place. They view archaeological studies as adverse effects. However, the tribal Department of Cultural Resources concludes that, in some circumstances, archaeological study of sites is an appropriate mitigation measure.

Two of the three archaeological sites within or partially within the proposed power plant site would not be affected by the Project (refer to Table 3.15-1). Site AZ M:6:46 (ASM) is on a high ridge at the northern end of the plant site parcel. Most of the site is outside the parcel and no construction activities are proposed on the ridge where the site is located. Site AZ M:6:48 (ASM) is within the right-of-way held by Western for the Mead-Liberty 345-kV transmission line that passes through the plant site. No construction activities are proposed at the site location.

Construction of facilities at the proposed power plant site would destroy part of archaeological site AZ M:6:47 (ASM) situated around a spring at the southern edge of the plant site. The wetlands at the spring would be avoided, but the access road into the proposed power plant site would disturb part of the scatter of artifacts around the northern margins of the spring. The site extends south onto Federal land managed by the BLM and that portion of the site would not be disturbed.

A corridor for the natural gas pipeline has been proposed but a specific right-of-way within that corridor has not been identified. Analysis of available survey data indicates that 15 properties eligible for or potentially eligible for the National Register of Historic Places have been recorded within this corridor. These resources include four aboriginal sites, eight ranches, three roads, and one beehive site (refer to Table 3.15-2). A 90-foot-wide construction disturbance through this corridor would not necessarily affect all of these resources, but other resources might be identified as intensive surveys are conducted in accordance with the Section 106 programmatic agreement developed for the Project. If any of these resources would be adversely affected, this would represent a significant adverse impact if the effects could not be satisfactorily mitigated. However, the programmatic agreement includes Section 106 consultation, which would ensure that impacts are mitigated to below significant levels.

The proposed primary substation communication system relies on microwave relays, as does one of the options for the dual/redundant system. These systems require installation of microwave dishes mostly within

existing microwave communication facilities and are not expected to adversely affect any significant cultural resources.

One option for a dual/redundant substation communications system involves installation of an OPGW on the Mead-Liberty transmission line. Ten National Register eligible or potentially eligible resources have been identified adjacent to this line.

Installation of the fiber optic line is not expected to require any new roads, but heavy trucks require pads about every 3 miles to pull and tension the OPGW. Each of these pads involves disturbance of about 0.33 acre. If this option were selected, there is good potential for making slight adjustments to avoid direct impacts on any significant cultural resources that might be found by surveys undertaken in accordance with the Section 106 programmatic agreement developed for the Project. The direct physical disturbance of any characteristics of archaeological and historical resources that make them eligible for the National Register of Historic Places would be an adverse effect, as defined by regulations for *Protection of Historic Properties* (36 CFR part 800.5).

The visual intrusion of the plant and introduction of noise represents a long-term alteration of the setting of the three sites discovered within the plant site. These modifications of the site settings would not affect the informational values of the sites, but from the Hualapai perspective they represent effects just as adverse as the direct physical destruction of part of the site.

Land use changes stimulated by the Project were considered as sources of potential indirect impacts on cultural resources. The construction of the Project is likely to stimulate a temporary population increase of about 3 percent in Kingman (550 workers) and 10 percent in Wikieup (15-20 persons) (refer to Section 3.16.2.4). The workers in Kingman would largely replace the Griffith Energy power plant construction force currently residing in Kingman, and therefore not stimulate new growth. The small magnitude of change in Wikieup is not expected to stimulate growth that would result in any substantial indirect impacts on cultural resources.

Alternative Gas Pipeline Corridors

Analysis of available survey data indicates that 21 properties eligible for or potentially eligible for the National Register of Historic Places have been recorded within the Alternative R gas pipeline corridor. These resources include five aboriginal sites, ten ranches, four roads, and one beehive site (refer to Table 3.15-3). This corridor crosses the Carrow-Stephens Ranches ACEC (refer to Section 3.10). A 90-foot-wide construction disturbance through this corridor would not necessarily affect all of these resources, but other resources might be identified as intensive surveys are conducted in accordance with the Section 106 programmatic agreement developed for the Project. If any of these resources would be adversely affected, this would represent a significant adverse impact if the effects could not be satisfactorily mitigated. However, the Programmatic Agreement includes Section 106 consultation, which would ensure that impacts are mitigated to below significant levels.

Analysis of available survey data indicates that eight properties eligible for or potentially eligible for the National Register of Historic Places have been recorded within the Alternative T gas pipeline corridor. These resources include two aboriginal sites, three ranches, and three roads (refer to Table 3.15-4). A 90-foot-wide construction disturbance through this corridor would not necessarily affect all of these resources, but other resources might be identified as intensive surveys are conducted in accordance with the Section 106 programmatic agreement developed for the Project.

No-Action Alternative

The Project would not be developed under the No-Action Alternative. Construction and

operation of the Project would not affect any cultural resources. Mitigation and Residual Impacts

- The potential impacts of the Proposed Action are expected to be "adverse" as defined by regulations implementing the National Historic Preservation Act (36 CFR Part 800.5). The implementation of mitigation measures, in accordance with the Section 106 programmatic agreement, is expected to reduce the impacts on the informational values of archaeological and historical sites and the residual impacts to archeological and historical site information values would be below the level of NEPA significance as defined by criteria discussed in Section 3.15.2.2.

- The Hualapai Tribe concludes that impacts on their traditional landscape would be a significant as defined by NEPA. If adopted, the following measures would be implemented to reduce significant impacts on cultural resources:

- Impacts on the traditional Hualapai cultural landscape and associated archaeological sites would be mitigated by supporting participation of the Hualapai Tribe in the ongoing Salt Song Project. This Project, which is being coordinated by the American Indian Studies Program at the University of Arizona, is focused on identifying the few individuals who still know and sing the Salt Songs that describe the spiritual landscape of the Hualapai and neighboring tribes. The Project is seeking to document traditional knowledge about the songs before it disappears. The Proposed Action would disturb an archaeological site around a spring, and such springs are mentioned in the Salt Songs. The disturbance of the site and construction of the Project represent an impact on the traditional Hualapai world. The Hualapai Tribe concludes that support for preserving an aspect of traditional Hualapai culture would be a way of compensating for such impacts and a valuable educational opportunity for tribal members.

- Construction crews would be trained formally about environmental commitments, including the importance of avoiding damage to any cultural resources that may be adjacent to construction areas and of reporting any archaeological finds.

- Even with the implementation of these measures, significant impacts would remain.

3.16 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

3.16.1 Affected Environment

3.16.1.1 Region of Influence

The socioeconomic region of influence for this Project is defined as Mohave County. This area is the geographic region within which the majority of effects are likely expected to occur. Although the majority of information is presented for the county, the description of the affected environment and the analysis of potential impacts also address conditions in Kingman and Wikieup, because both communities are within a daily commuting radius of the proposed power plant site.

Kingman is the county seat and a major population center of Mohave County. Kingman is located in northwestern Arizona at the intersection of I-40 and US 93 at an elevation of 3,400 feet. It was established in the early 1880s and was incorporated in 1952. Mohave County also includes Colorado City, Bullhead City, Lake Havasu City, and a number of unincorporated communities. Kingman is less than a one-hour drive from the proposed power plant site and provides access to a wide range of trade, public services, and community services.

3.16.1.2 Existing Conditions

Existing socioeconomic conditions are described for Mohave County, Kingman and Wikieup and